
JOBS, TRAINING, AND THE EVOLVING CAMBRIDGE ECONOMY

June 20, 1991

Preliminary Findings of the

Community Development Department

Employer Survey

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Special thanks to the 91 Employers who gave their time and attention to make Cambridge a better place to live and work

Introduction

Working closely with the Cambridge City Council and the Cambridge Chamber of Commerce, this survey was conducted to determine the effects that the changes in the local economy have had on employment opportunities in the City. The department began this project in early 1990 to determine how Cambridge's industries had changed, which were growing and which were declining, and what the likely implications of these changes would be on Cambridge residents.

During the 1980's the City's economic development program concentrated on revitalizing declining industrial areas throughout the City with a view toward strengthening the City's tax base, creating job opportunities, and enhancing the physical environment. As the decade came to a close the Department had focused increased attention on improving access to local jobs for Cambridge residents and on workforce improvement efforts to make local companies more competitive. Revitalizing the Cambridge Employment Program to accomplish these goals has become a major priority. This survey was conducted to help in that effort and to help guide economic policy development in the 1990's.

Due to the extremely high level of interest in this project, this report of preliminary findings is being released in an effort to provide policy makers, program developers, and the general public with some of the more important findings in as timely a fashion as possible. Further analysis will be conducted in the coming months and a complete report will be forthcoming.

The survey yielded dramatic results. New technologies have spawned new businesses which have transformed the local economy. These new industries are likely to lead Cambridge's economic growth into the future. Along with these new industries has come the need for highly skilled workers. High school diplomas no longer assure that residents will have the chance to get good jobs in their home town.

There are still areas of hope, however, for workers other than those coming out of the City's famous institutions. The expanding occupations in technical job categories are emerging as the new middle of the Cambridge economy offering good wages for workers with moderate education levels. Perhaps the most encouraging finding of the survey was the consistently high level of interest Cambridge companies have in improving the preparation of the local workforce and the willingness to work toward that end.

Methodology

This report is based on a series of interviews with Cambridge employers conducted between January and April, 1991, by Community Development Department staff and by Judith Leff, a consultant engaged by Councilor Jonathan Myers to research training issues. The interviews were generally conducted in person and took one to two hours to complete.

The survey instrument was developed by CDD staff in cooperation with the Business Advisory Group, composed of representatives of Draper Laboratories, Forest City Development, Genetics Institute, Mount Auburn Hospital and Norrell Temporary Services.

The survey sample was constructed from a database provided by the Cambridge Chamber of Commerce. The database was updated through use of Traffic and Parking records and through listings developed by CDD staff. Only firms of 20 employees or more (as listed in the database) were selected. Sixty employers were selected randomly, with the goal of achieving plus or minus 10% sampling error. An additional over-sample of 39 was selected non-randomly to investigate areas of particular importance to the Cambridge economy. The oversample included the 15 largest employers (those not selected randomly) and several sectors chosen by standard industrial classification.

The combined random sample and over-sample represent a cross-section of the Cambridge economy, reflecting a diversity in size, age, activity and growth rate.

The resulting data set was cleaned, coded and entered in Q&A, a database manager, by CDD staff. After additional cleaning, it was processed and tabulated by DataStar of Waltham, MA.

Data Analysis The responses were analyzed and compared on the basis of each employer's age, mobility (likelihood of remaining in Cambridge), employee size, expected growth trends and industrial category. Also analyzed were trends for specific occupations, or type of work performed. Industrial and occupational groups were chosen as follows:

Industrial Clusters The majority of the responses were grouped by standard industrial classification into broad groups or "clusters." Particular industries were clustered on the basis of similar activities, growth patterns, occupations, skill requirements and technologies.

- **Goods Production:** Creation or processing of tangible goods, through construction or manufacturing. A high concentration of skilled and unskilled production jobs exists.
- **Customer/Personal Services:** Retail and wholesale trade, including restaurants, department stores, food stores and other goods; direct customer services such as hotels. Sales and service occupations, such as maintenance, food serving and security predominate.

- **FIRE/Business Services:** Finance, insurance and real estate; services to businesses, including janitorial and word processing firms, as well as research and testing, computer consulting and software development; management consulting and engineering and architectural services. White collar occupations, particularly professional and technical positions, predominate.
- **Medical/Biotechnical:** Medical Services (Hospitals, Health Maintenance and Biomedical Laboratories); biomedical research; biotechnical manufacturing. The sector includes many technical and professional jobs, with certain areas specializing in service (hospitals) and clerical/administrative (health maintenance).
- **Education:** Universities and (private) schools and colleges. Professional positions predominate, with high levels of clerical, managerial and technical work.

Occupations Standard Occupational Categories, as employed by the US Census Bureau and the Department of Labor, were used.

- **Service** (e.g. guards, cooks, janitors, orderlies)
- **Clerical** (e.g. secretaries, clerks, administrative assistants)
- **Skilled Crafts and Production** (e.g. mechanics, production supervisors, skilled machinists, carpenters, plumbers)
- **Semiskilled & Unskilled Production** (e.g. assemblers, machine operators)
- **Technicians** (e.g. computer programmers, laboratory assistants)
- **Sales and Marketing** (e.g. sales representatives, cashiers)
- **Managerial** (e.g. executives, administrators)
- **Professional** (e.g., engineers, professors, systems analysts, registered nurses)

Limitations of the Report This is a preliminary report, to be elaborated and finalized by September, 1991. While the data presented here were gathered and checked using methods of statistical probability, the findings should be viewed as suggestive rather than "scientific" or final. The intention of this analysis is to provide an overview of the Cambridge economy and a closer look at its working parts. Given the limited sample size and the substantial group of responses chosen non-randomly, generalizations about very specific activities and trends should be made cautiously, if at all. The data set is most useful for portraying the broad direction of the economy, and for drawing comparisons between its component parts.

The report, as noted, also omits employers of under 20 workers, as well as companies who have gone out of business. It thus cannot report with precision about "start-ups" in their infancy, single proprietors or very small, family-oriented businesses, nor can it explain the conditions for business failure or withdrawal.

The Resident Labor Force

Shifts in the Cambridge economy are mirrored in the makeup of the resident workforce. In 1950, nearly one worker in three was employed by manufacturing firms. By 1980, their ranks had thinned down to about one in eight with 13% of the City's residents working in manufacturing. In 1950, 28% or about 13,000 workers were employed in services. By 1980, their numbers had more than doubled.

Today, the Cambridge workforce is in transition. There are fewer residents, and a greater share of them come from minority and immigrant backgrounds. The proportion of women who work has increased. The workforce of the 1990s will have fewer youthful entrants and more mid-life and older workers.

The population of Cambridge is stable at 95,802 persons after four decades of decline. The population is projected to be stable or decline slightly through the year 2,000. Corresponding to state and national trends, families are smaller, fewer families are forming and household size has declined. There are more households, and their members are more likely to live alone, as roommates or as couples without children.

The minority share of the Cambridge population has grown. Since 1950, the number and the share of non-white and Hispanic white residents has grown substantially, from five percent to 28% in 1990. Asians are the fastest growing group in the city, more than doubling their share from 3.8% to 8.4% in ten years. Non-black minorities are projected to reach 15% of the population in 1995, nearly tripling their share since 1980.

Minority residents face significant challenges to labor market entry and advancement. They are more likely to be unemployed, or to be employed in lower paying occupations such as services, clerical and production work.

Youth in particular reflect the growing diversity of Cambridge. Nearly one-half of those under 18 are of minority background. Over one quarter of the black and Hispanic populations are under 18, as well. Public school enrollments also indicate growing diversity. Fifty percent of the student population was of minority background in the 1988-1989 school year, compared to 38% in 1981.

The Cambridge labor force size is likely to stabilize or decline slightly in this decade, after growing steadily from 46,000 in 1960 to about 54,000 in 1990. The slowdown can be traced to fewer youth and young adults entering the workforce. In the coming decades there will be an expanding population of those nearing retirement age or older.

Workforce participation of women is expected to level off after continuous growth over the past two decades.

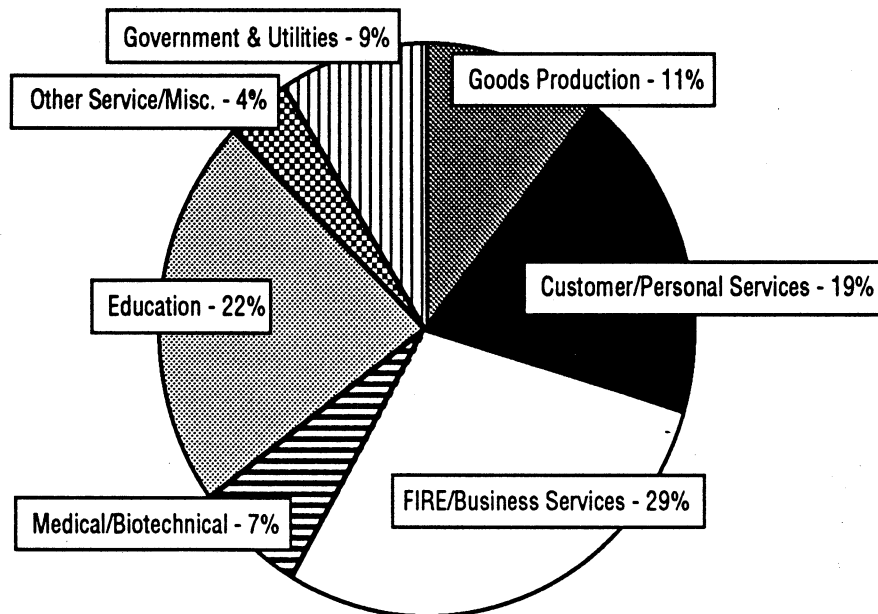
Many immigrants and refugees have entered the Cambridge labor market in the past decade. The largest groups of "newcomers" have migrated from Latin America, Portuguese-speaking areas and Haiti. The fastest growing immigrant groups originate in Central America, especially El Salvador, Guatemala and Nicaragua, and Haiti. Others have continued to arrive from Cape Verde, Portugal, Puerto Rico, Jamaica, Cuba and Africa, including Ethiopia and Eritrea.

What is Cambridge's Current Industrial Mix?

Cambridge's diverse economy employs just over 100,000 people. In the 1980's the economy added jobs at a rate of about 1,000 a year. While the number of Cambridge jobs was expanding, the types of jobs were also changing as emerging industries continued to replace the traditional goods producing base of the economy.

Goods production, once the city's leading employment source, now makes up only 11% of the economy. Conversely, Finance, Insurance, and Real Estate (FIRE) combined with Business Services expanded dramatically in the 1980's and now employs almost 30,000 people (29%). Cambridge's most well known industry, Education, continues to anchor the economy with about 23,000 jobs.

Industrial Mix of Cambridge (Total Jobs: 100,621)



*Not equal to 100% due to rounding.

Almost 1 in 5 jobs in the economy are in the Customer and Personal Services sector which encompasses businesses such as retail stores, eating and drinking places, barber shops, hotels, and funeral homes.

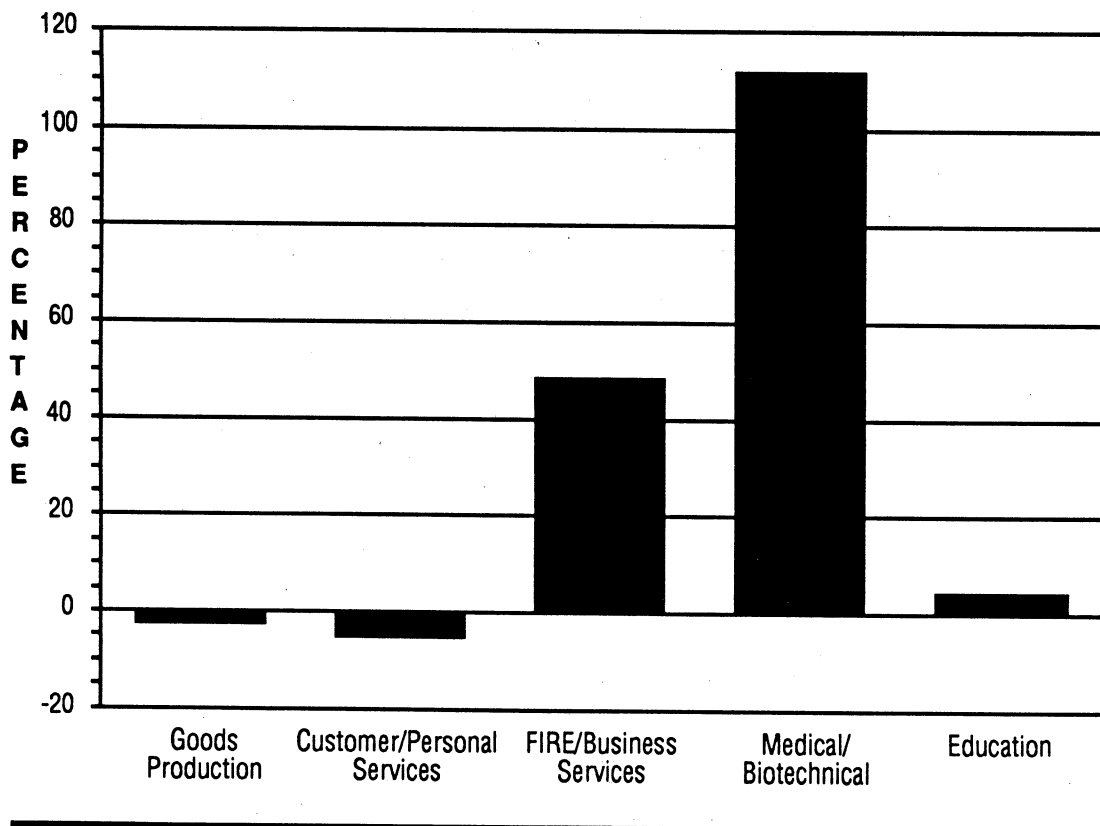
The Medical and Biotechnical industries, sources of considerable recent attention, provide only 7% of the city's jobs. Although Cambridge is recognized as a center of international leadership in these fields and much of Boston's and Massachusetts' economic planning has focused on them, their share of total employment in the city is still relatively small.

Other important employment sectors include Government, Utilities, and Miscellaneous Services which together represent 13% of the employment base.

Which Industries have Expanded and which have Contracted in Recent Years? How will Industries Change in the Coming Years?

The Cambridge economy continues to evolve toward knowledge-based industries and away from traditional product manufacturers. Often referred to as the "New Economy," these emerging industries frequently include firms that are dependent on technology and/or skilled labor from the City's research institutions and related companies. The "New Economy," characterized mostly by companies in the Biotechnical, Health Services, and Business Services industries has been and will be the fastest growing source of new job creation in Cambridge.

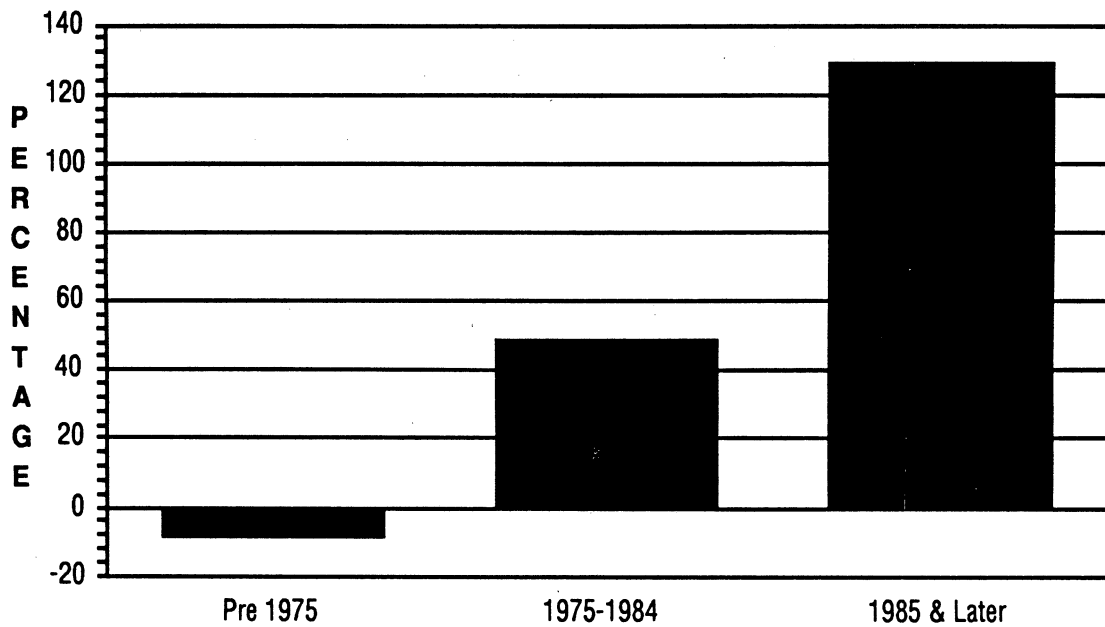
Industry Employment Change Over the LAST Three Years



- The 11 Medical/Biotechnical companies in the survey sample experienced an average growth of 112% while Customer/ Personal Service firms averaged a 6% decline.
- While slightly more than half of the companies in both Goods Production and Customer/Personal Services lost jobs over the last three years, 82% of Medical/Biotechnical employers added jobs during that period.

Mature companies, those established before 1975, have been much harder hit by the recent downturn in the economy than newer firms. While most new companies are "lean" and growing, older ones have been three times as likely to have reduced their staffs in recent years.

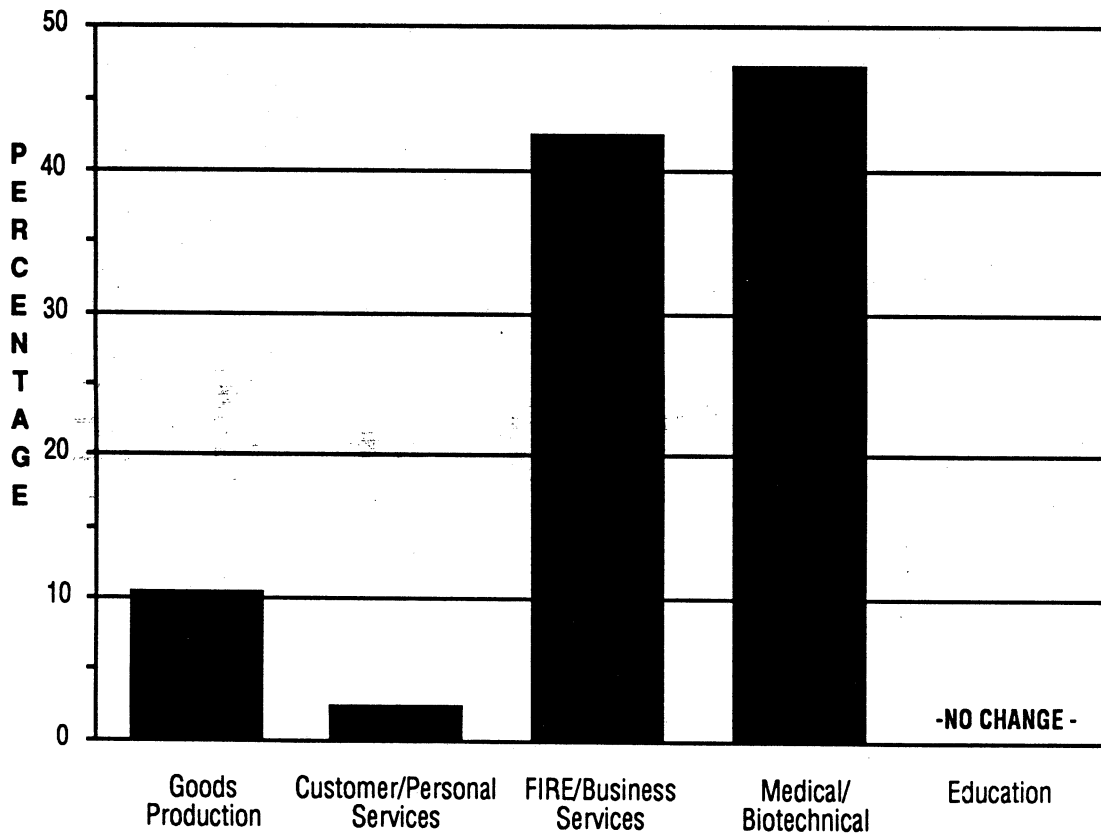
Employment Change Over the LAST Three Years by Date Companies were Established in Cambridge



- Mature companies, on average, reduced their employment by 10% while new companies had average growth rates of over 120%.
- About half of the companies established prior to 1975 lost jobs, but only 18% of the companies established since 1985 experienced employment decline.

The trends of the recent past are expected to continue, but the stark contrast of the "New Economy" growth and traditional base decline will moderate somewhat over the next three years. The Medical/Biotechnical and the FIRE/Business Services sectors will continue to expand but less rapidly than they have, and Goods Producers and Customer/Personal Services both anticipate moderate expansion to replace their recent decline. Education should remain a steady source of over one in five of the city's jobs.

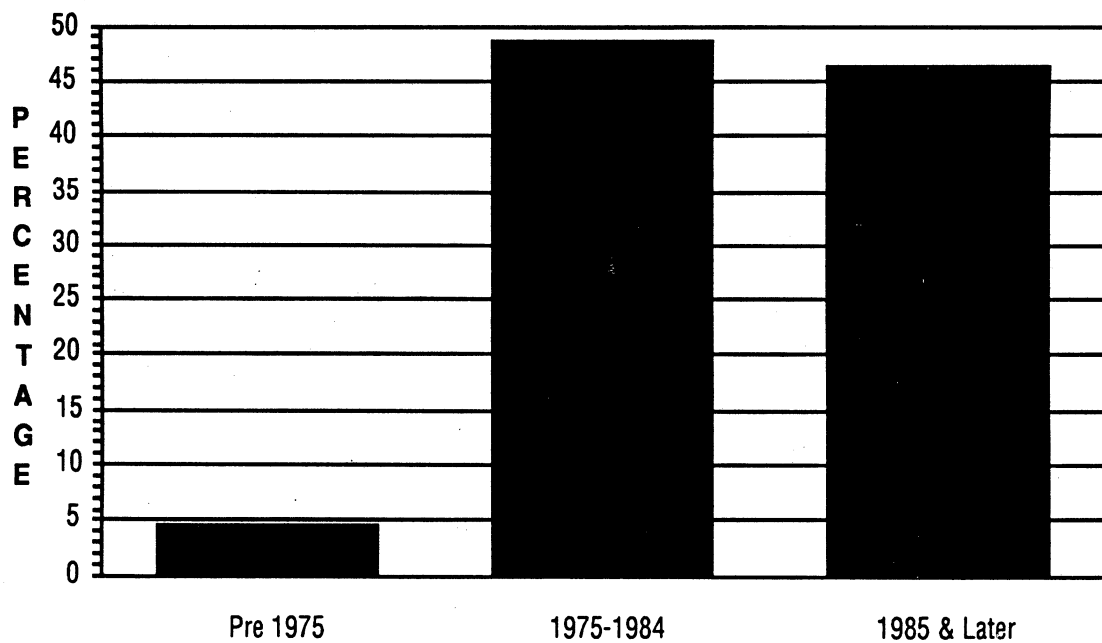
Expected Employment Changes by Industry Over the NEXT Three Years



- Virtually all Medical/Biotechnical companies surveyed expect employment expansion in the next three years, but most anticipate job growth of no more than 25% of their current total employment.
- 70% of FIRE/Business Service respondents anticipate net job expansion.

The employment growth of newer companies will also continue at a more moderate pace than in the recent past and more closely match that of companies established in the late seventies and early eighties. Older companies will continue to grow at a much slower rate.

Expected Employment Growth Over the NEXT Three Years by Date Companies were Established in Cambridge



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- Of the companies expecting major expansion of 50 or more jobs, nearly two-thirds were established since 1980.

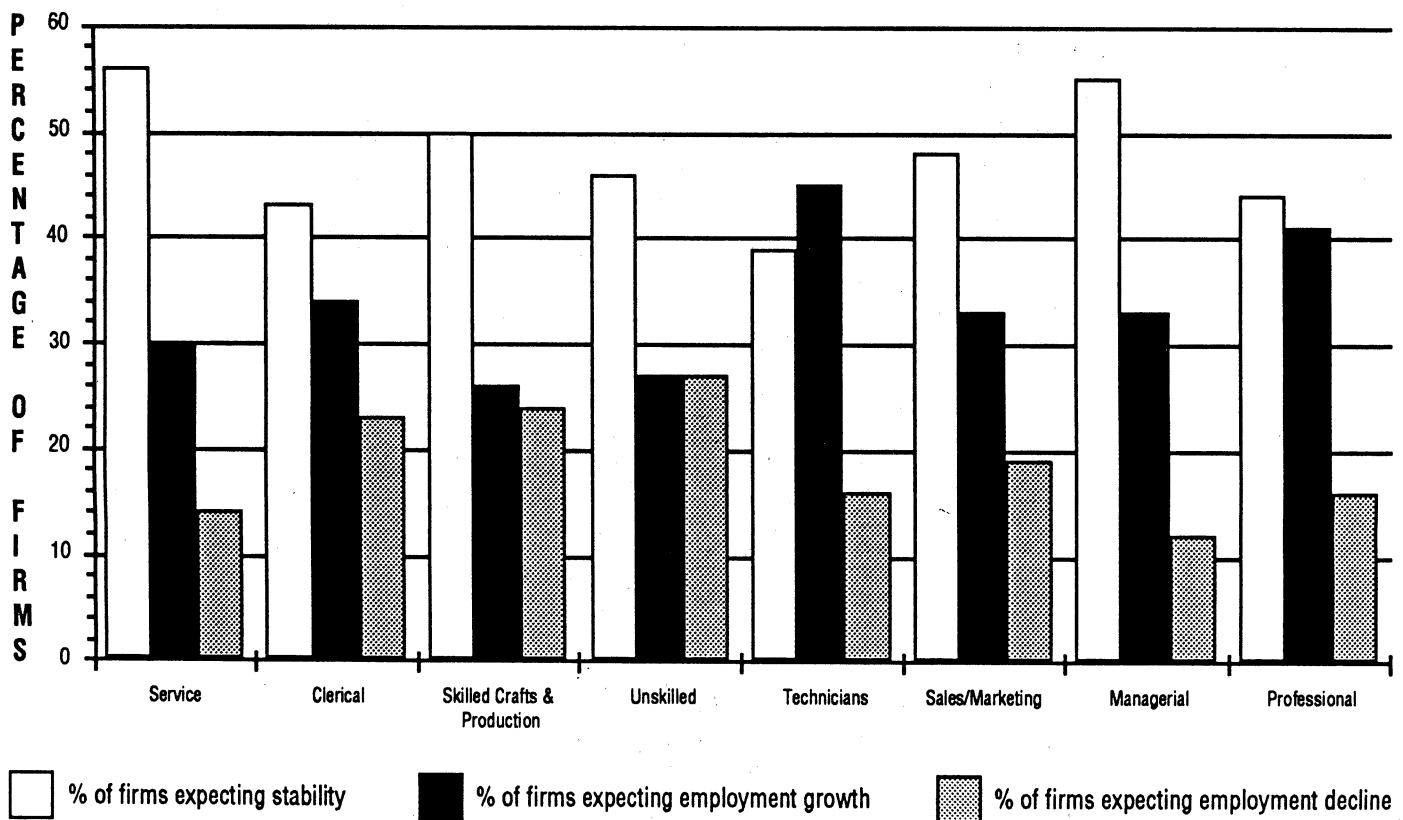
How do these Changes Affect the Labor Force? What Jobs will be Available in Cambridge?

Changing skill requirements can be traced to three major trends affecting local employers: new technology, changes in the organization of work, and the changing mix of economic activities. While the industry mix in Cambridge becomes more dominated by the knowledge based "New Economy," job opportunities are becoming increasingly oriented toward high skill occupations. Technology has eliminated the need for many low skilled positions and workers throughout the economy are expected to exercise more independent judgement on the job.

Technical and Professional positions have grown the most over the last three years while unskilled crafts/production, skilled crafts, and clerical positions have been the most likely to be eliminated.

The trend will continue with technical, professional, and sales positions growing most rapidly and unskilled production, skilled crafts, and clerical positions the most likely to decline.

Employment Changes Over the LAST Three Years by Occupational Category



Clerical

- Medical/Biotechnical firms are most likely to expand clerical positions with 73% of them expecting clerical growth in the next three years.
- Changes in health care administration have accelerated growth in "third party billing" and increased demand for billing coordinators and claims representatives.
- Computer use has reduced demand for both inventory staff, such as stock assistants, and accounting positions, such as bookkeepers.

Skilled Crafts

- Skilled crafts positions declined in more than one-half of the survey's Goods Production firms while less than one in five of them added such jobs. Carpenters, HVAC workers, and Assemblers were among the workers losing jobs in this category.
- Of 46 companies surveyed that have skilled craft positions, 11 have had some reduction in these jobs and all 11 are mature companies established prior to 1975.
- Seven of nine Medical/Biotechnical employers expect further increases in skilled craft jobs.
- Only three companies in the entire sample expect to have rapid employment decreases. Of those, two anticipate their largest lay-offs to be in skilled crafts/production jobs and the other firm will be cutting unskilled positions.

Unskilled/Production

- In Goods Producing and Customer/Personal Services companies, unskilled/production jobs fared poorly in the last three years with four firms eliminating these positions for each company that added them.

Technical

- The Cambridge economy will provide considerable opportunities over the next three years for technical employment, the strongest category for projected growth. Of the 55 companies that employ technicians, not one firm expects decline in the category. In all industries except goods production more firms expect technical employment increases than stability.
- Technical positions have been expanding in half of the companies in which they exist. 70% of FIRE/Business Services companies added technical workers and over 90% of Medical/Biotechnical companies expanded their technical employment.
- Virtually all Medical/Biotech companies expect additional technical employment growth. Positions for Lab Assistants, Medical technicians, and Animal Handlers will be among the growing opportunities in this category.
- Technician positions are the least likely to be filled by Cambridge residents. Only 6% of all technicians in the surveyed companies are residents.

Sales/Marketing

- Sales and marketing positions expanded moderately in the last three years but expect to grow more rapidly in the next three years.

Managerial

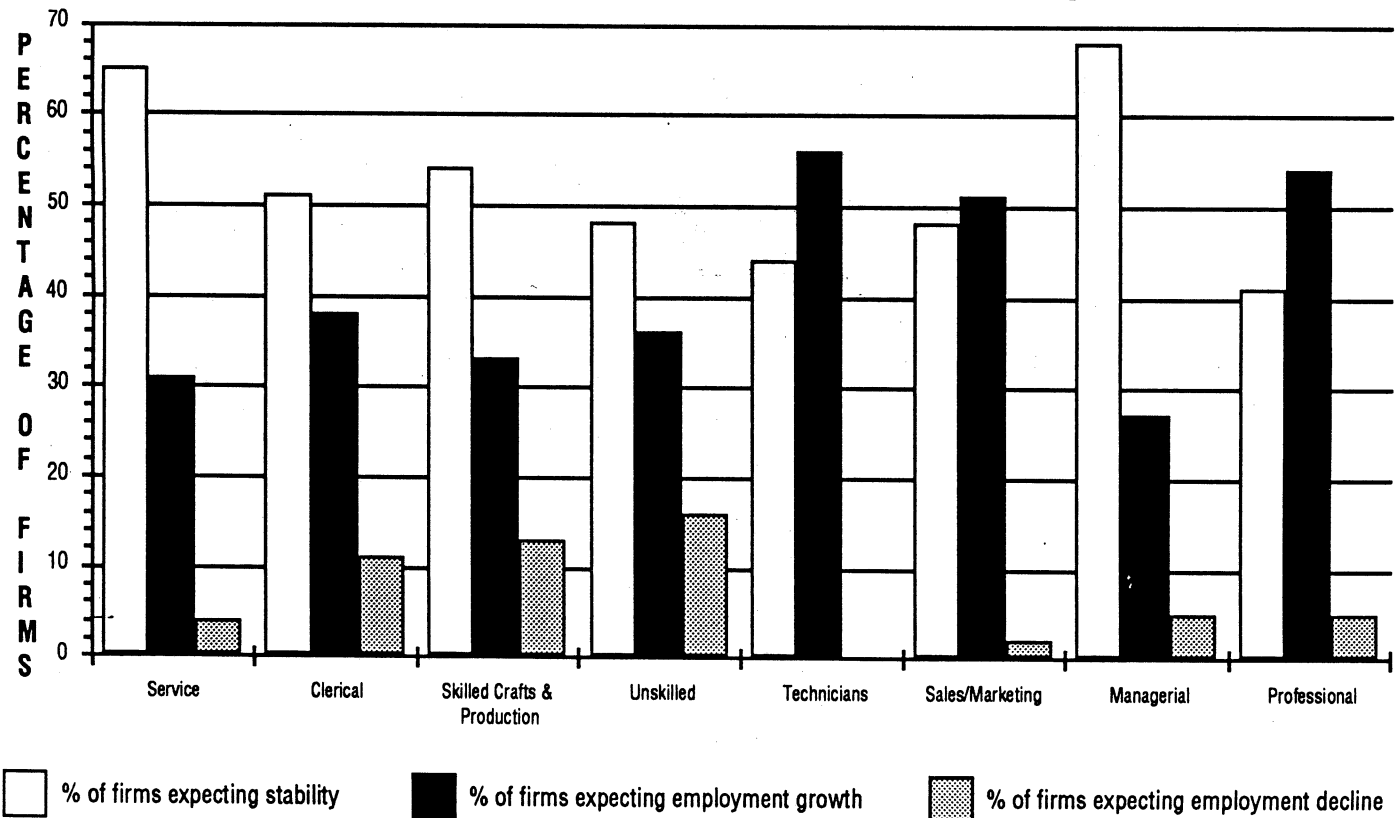
- Only about 10% of all respondents reduced their managerial staffs. Of these most were mature companies (established before 1975).
- In well over one-half of companies in the FIRE/Business Services, Medical/Biotechnical, and Education sectors, managerial expansion has occurred over the last three years.
- Medical/Biotechnical and Educational employers were most likely to add managers. 64% and 75% of the companies in these industries respectively added managerial positions.
- Over two-thirds of the responding firms expect their managerial staffs to remain stable over the next three years. The remaining firms are five times as likely to add managers than to expect reductions.

Although there is no dominant pattern of categories in which lay-offs would occur if firms were forced to reduce staff, clerical (20%) and professional (15%) are the most likely candidates while Sales and Marketing (4%) is the category least likely to incur lay-offs.

How Well Prepared are Workers and Applicants? Where is Change Needed?

The Cambridge area is rich with highly skilled candidates for upper level positions, but many employers are concerned about the quality of worker preparation for low and middle skilled positions.

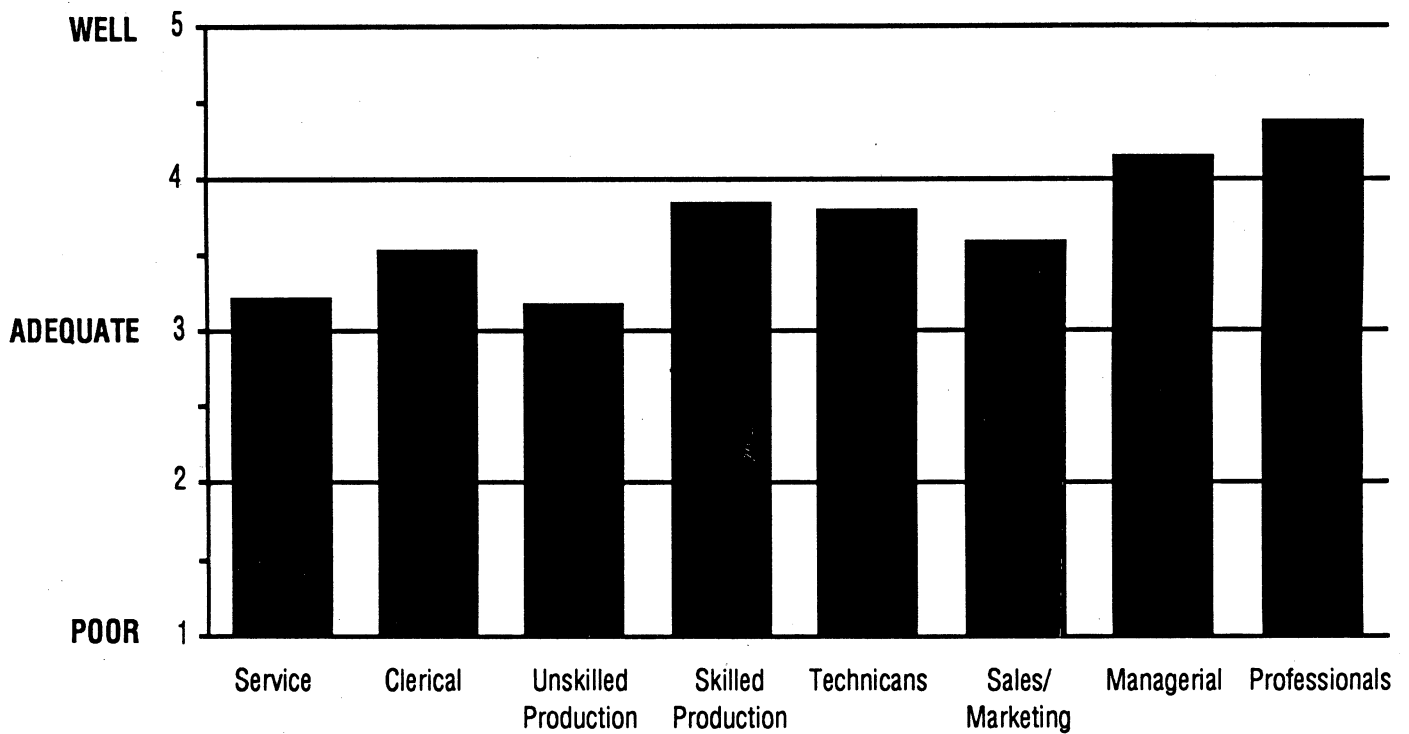
Expected Employment Changes Over the NEXT Three Years by Occupational Category



- Employers feel that applicants are more well prepared for positions that require higher skills. They rated applicants for service and unskilled production positions as the least prepared to fill their positions adequately.

Employers cite the lack of job specific skills as the most frequent shortcoming of applicants for "entry level positions." Poor work attitudes and poor communication skills are rated as the second and third biggest barriers to employment for job-seekers.

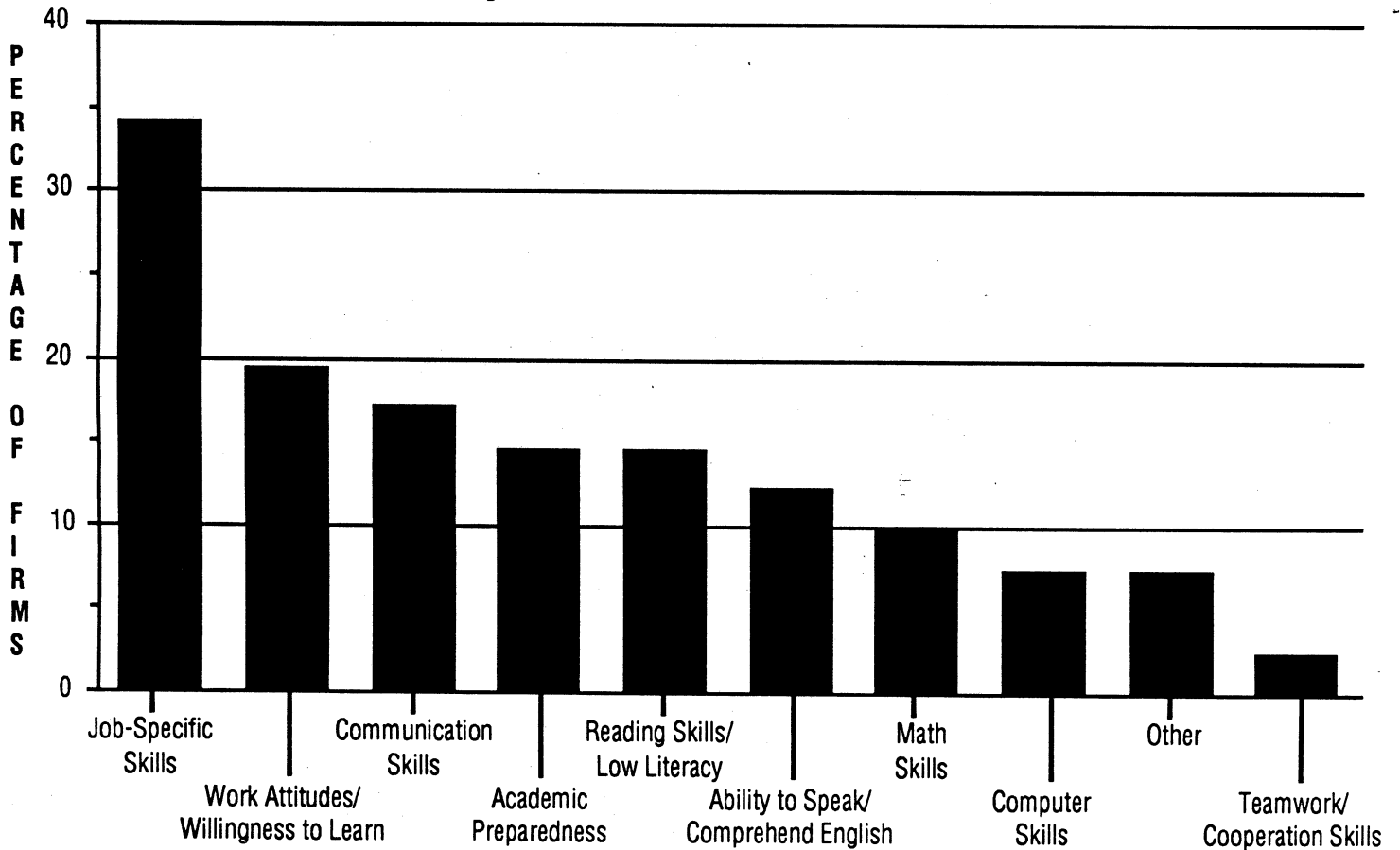
Level of Preparation of Job Seekers by Occupational Category



Employers are concerned about social and interpersonal skills for workers within their organizations. For entry level workers in positions not requiring a Bachelor's degree (B.A.), poor work attitudes are the number one barrier to job performance, followed by poor communication skills, reading/literacy, and teamwork/cooperation skills.

Ironically, a recent survey of Cambridge High School students indicates a dramatic mismatch between employers perceptions about entry level workers and how students view themselves on the same issues.

Most Frequent Weakness of Job-Seekers



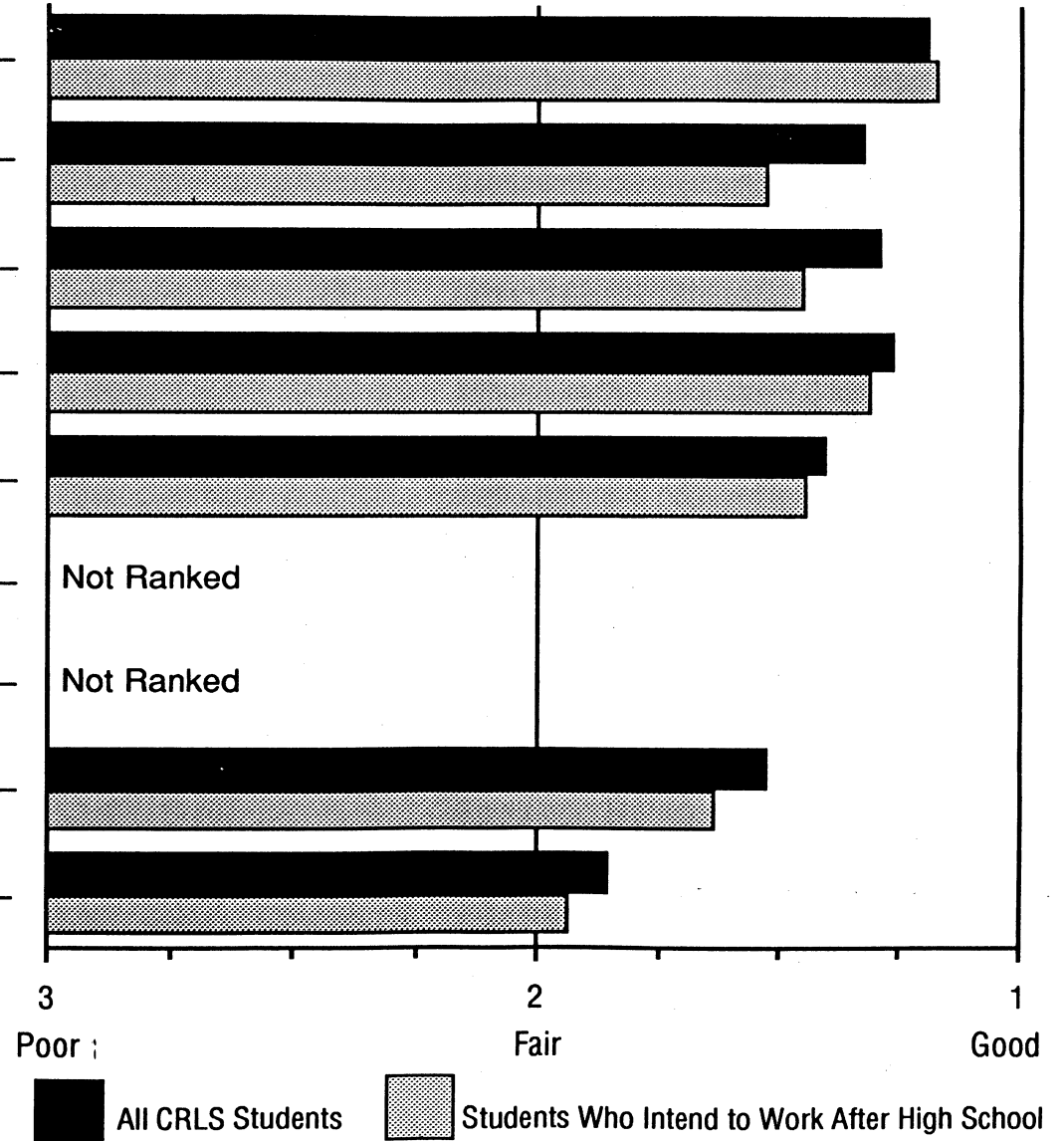
- Computer skills are the #1 problem for entry level workers in only two of 77 companies but students rate computer skills as the area in which they need the most improvement.
- While employers report being most concerned with the poor work attitudes of their entry level workers, students deem work attitudes to be their strongest trait.

Ranking of Obstacles to Job Performance for Workers in Non BA Positions



- 1) Work Attitudes/Willingness to Learn _____
- 2) Communication Skills _____
- 3) Reading/Literacy _____
- 4) Teamwork/Cooperation Skills _____
- 5) Academic Preparedness _____
- 6) Job Specific Skills _____
- 7) Ability to Adapt and Learn _____
- 8) Math Skills _____
- 9) Computer Skills _____

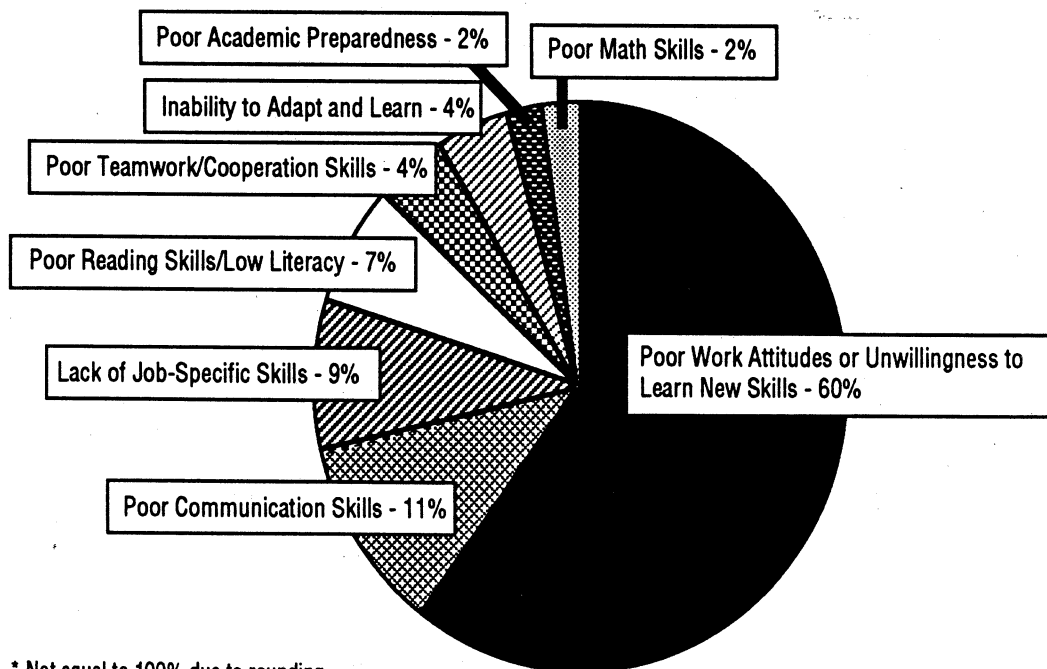
How CRLS Students Rank Themselves on the Same Traits



- 60% of employers agreed that poor work attitudes are the biggest problem for young workers under 22, but not a single company cited poor computer skills.

Older workers near retirement are hampered most by poor computer skills and are also impeded by poor work attitudes.

Most Frequent Impediments to Job Performance for Young (under 22) Workers

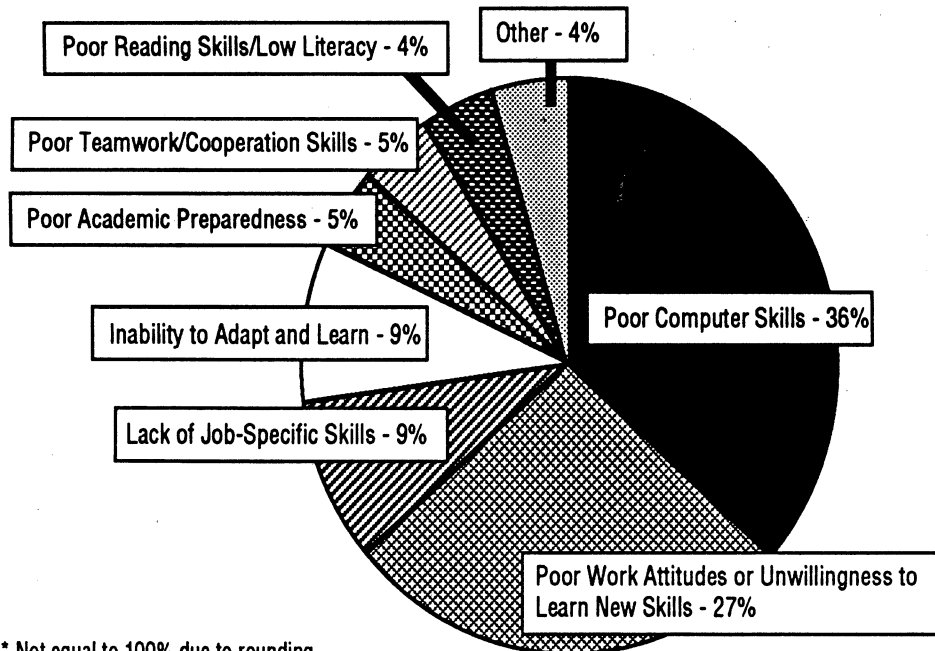


* Not equal to 100% due to rounding.

Who do Companies Employ? Who do They Anticipate Hiring?

Both residents and minorities are currently disproportionately under-represented in high wage categories.

Most Frequent Impediments to Job Performance for Workers Near Retirement



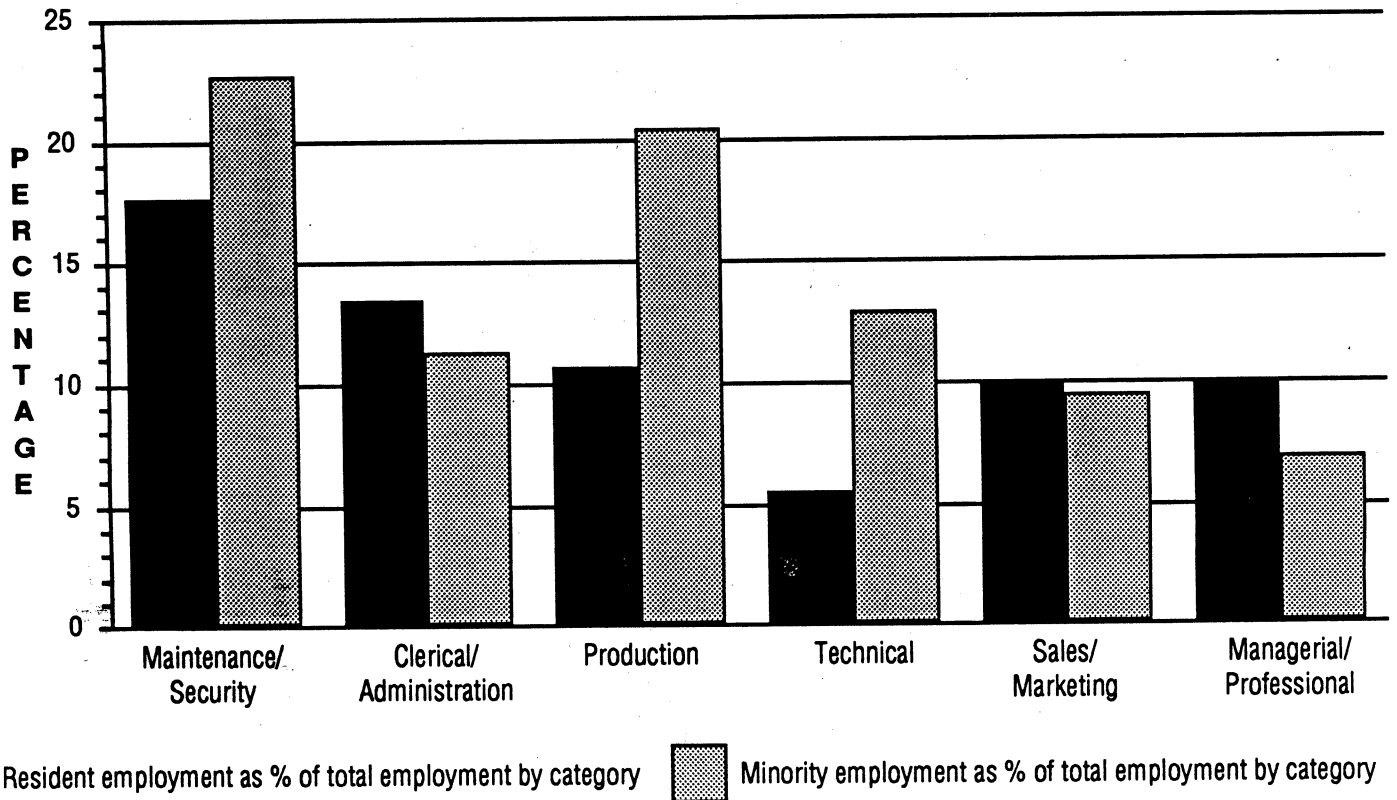
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- While nearly a quarter of all service workers in the sample companies are minorities, only about 7% of the managers are.
 - Technical positions are expected to grow more rapidly than any other in the economy, but currently Cambridge residents occupy only about 6% of these jobs.

Employers increasingly emphasize prior work history in selecting among candidates. While Cambridge employers tend to offer considerable training, workers who require less "catch up" training on the job are more competitive.

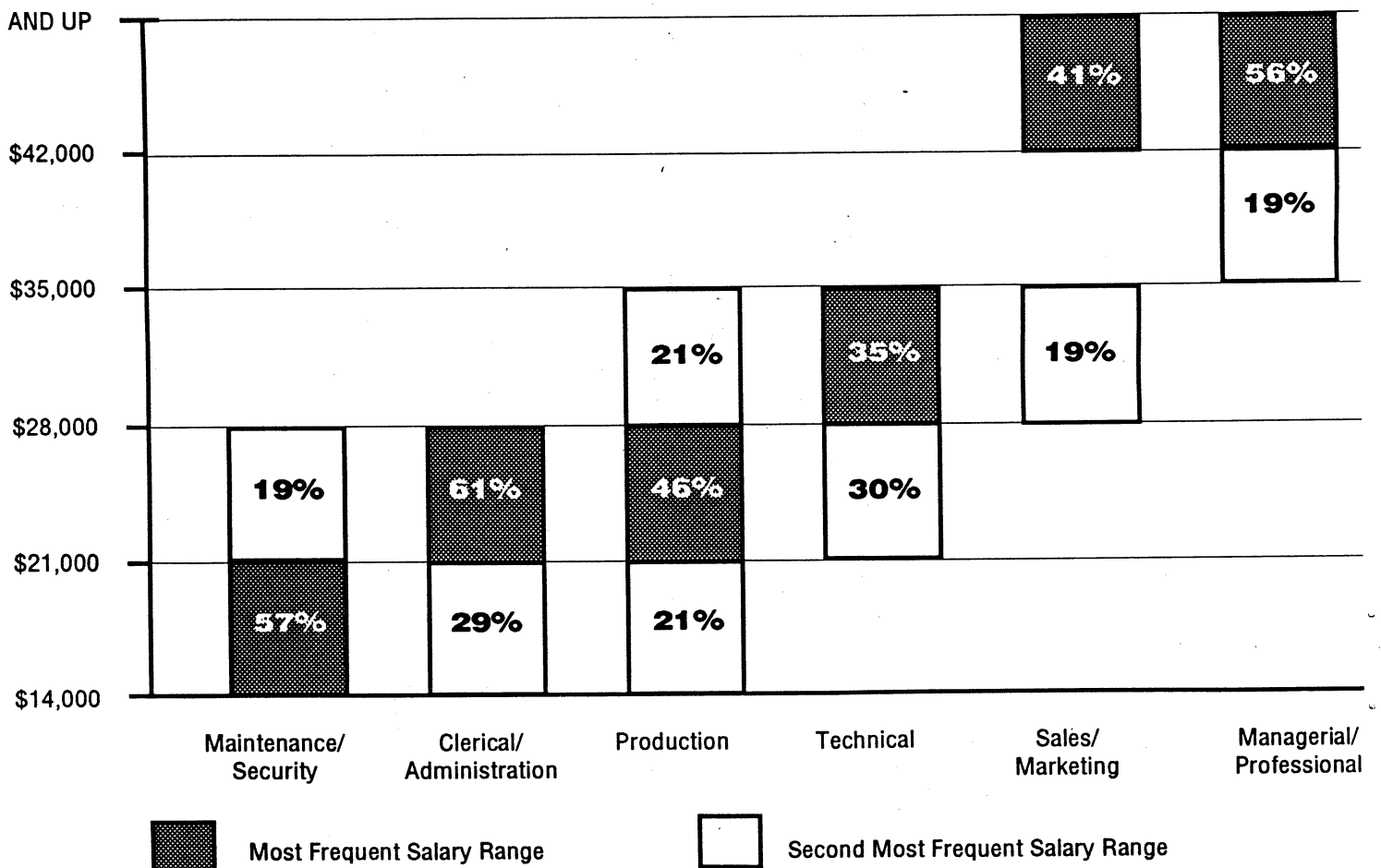
- One of the city's largest retailers does not plan to hire any applicants lacking a retail customer service background.

Companies throughout the economy need better trained workers today and the growing sectors in the "New Economy" require even higher levels of skills and education than typical Cambridge employers. A comparison of the high skill requirements of the rapidly expanding Medical/Biotechnical sector with the much lower requirements of the Customer/Personal Services sector illustrates the point.

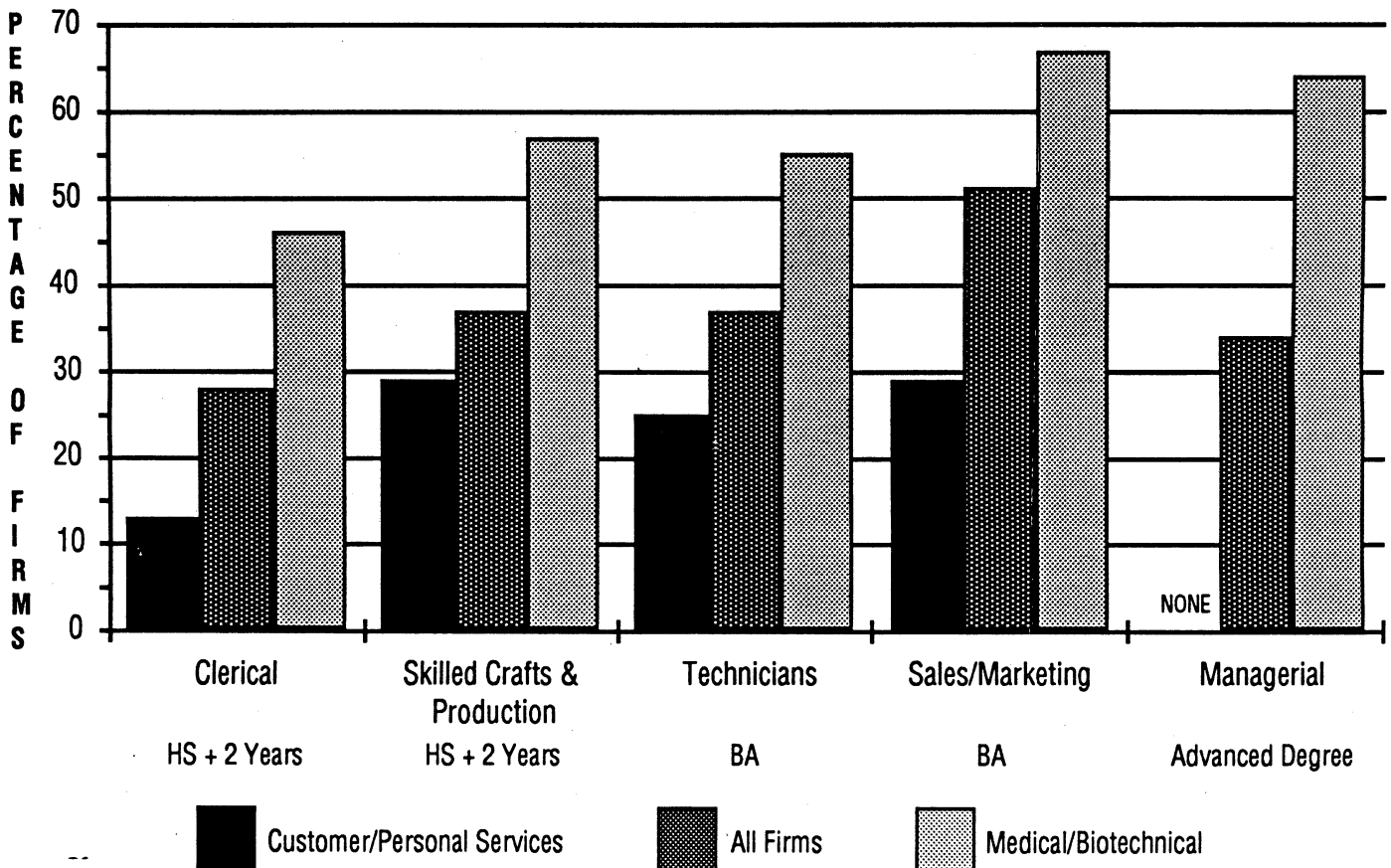
Resident and Minority Employment by Occupational Categories



Salary Range Frequencies by Occupation



Common Educational Requirements in all Firms Compared to Customer/Personal Services and Medical/Biotechnical



Service

- Most of the Cambridge economy's service level positions require a high school diploma (41%), have no minimum requirements (38%), or require relevant work experience (16%).

Clerical

- Almost half of all companies merely require a high school diploma for clerical positions but an additional one quarter require two years or more of post-high school study.
- Medical/Biotechnical employers have higher than average requirements for clerical workers. In this industry applicants need a high school diploma (46%) or high school plus two years of additional schooling (46%).
- In several research and management consulting firms, employers prefer clerical staff with some college or even a Bachelor's degree. They emphasize the need for social and verbal skills.

Technical

- Technical positions have varying requirements depending upon industry. Throughout the Cambridge economy firms generally require a B.A. degree (40%) or high school diploma plus two years of additional schooling (34%).

- The Medical/Biotechnical and FIRE/Business Services industries tend to require a B.A. degree for technical positions while Goods Producers are more inclined to require two years of post-high school education.
- Rapidly growing firms are twice as likely to require B.A.s (57%) as they are to require two years of post-high school education (29%) for technical positions.

Managerial

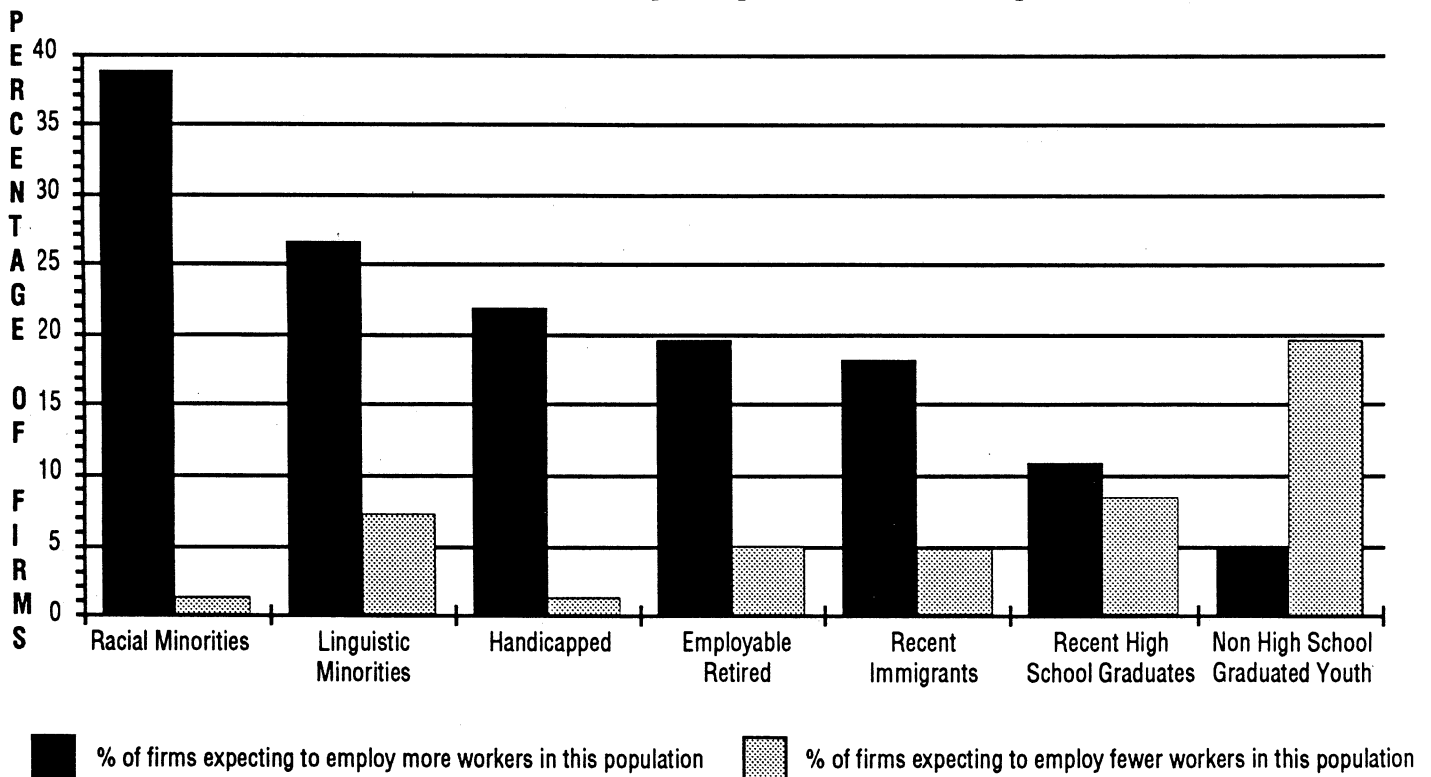
- Although only one in four Cambridge companies require post-B.A. study for managers, well over half of the companies expecting rapid growth require these high educational qualifications.
- Education, Medical/Biotechnical, and FIRE/Business Services employers all require high education for managers. In more than half of the companies in these industries, post-B.A. study is required for managerial positions.

Professional

- Although less than one third of the professional positions in the overall economy require post-B.A. schooling, over half of the companies reporting rapid expected growth required post-B.A. study for professionals.

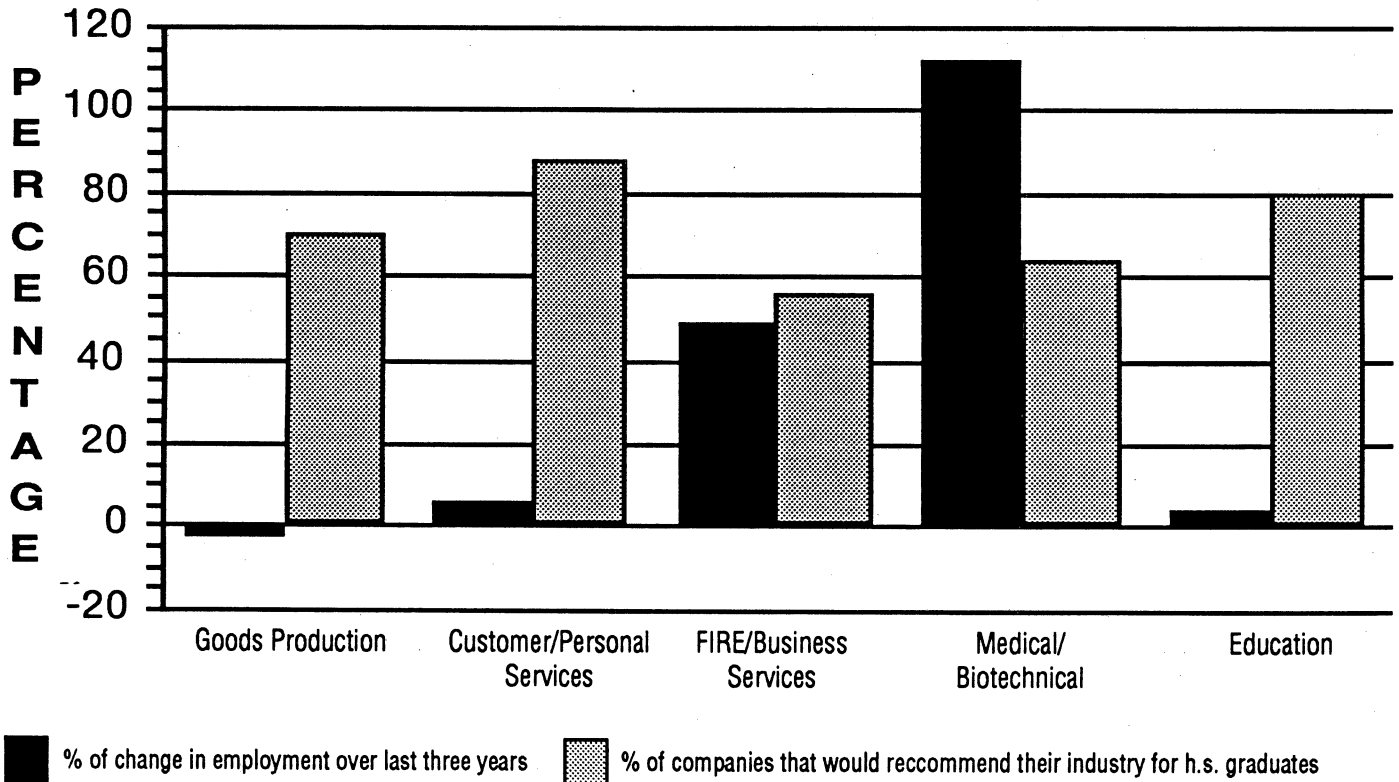
The City's highest paying positions are not accessible to a large proportion of the Cambridge population. Non-B.A. holders stand almost no chance of getting a managerial or professional job in any of the City's industries. This trend will continue to worsen as the economy evolves. A disproportionate amount of job growth is occurring in positions that require at least a Bachelor's degree.

Expected Employment Change Over the NEXT Three Years by Population Groups



Employers in Cambridge still report general optimism about job opportunities for applicants with high school diplomas. Throughout the economy, the number of firms that expect to increase employment of workers with no more than a high school diploma is about the same as those that will hire less. The growing sectors of the "New Economy," however, are much less hopeful. They report less chance of employment and much less chance for career advancement than traditional sectors for workers at the high school diploma qualification level.

Industry Employment Change Rates Over the LAST Three Years Compared to Appropriateness for High School Graduates

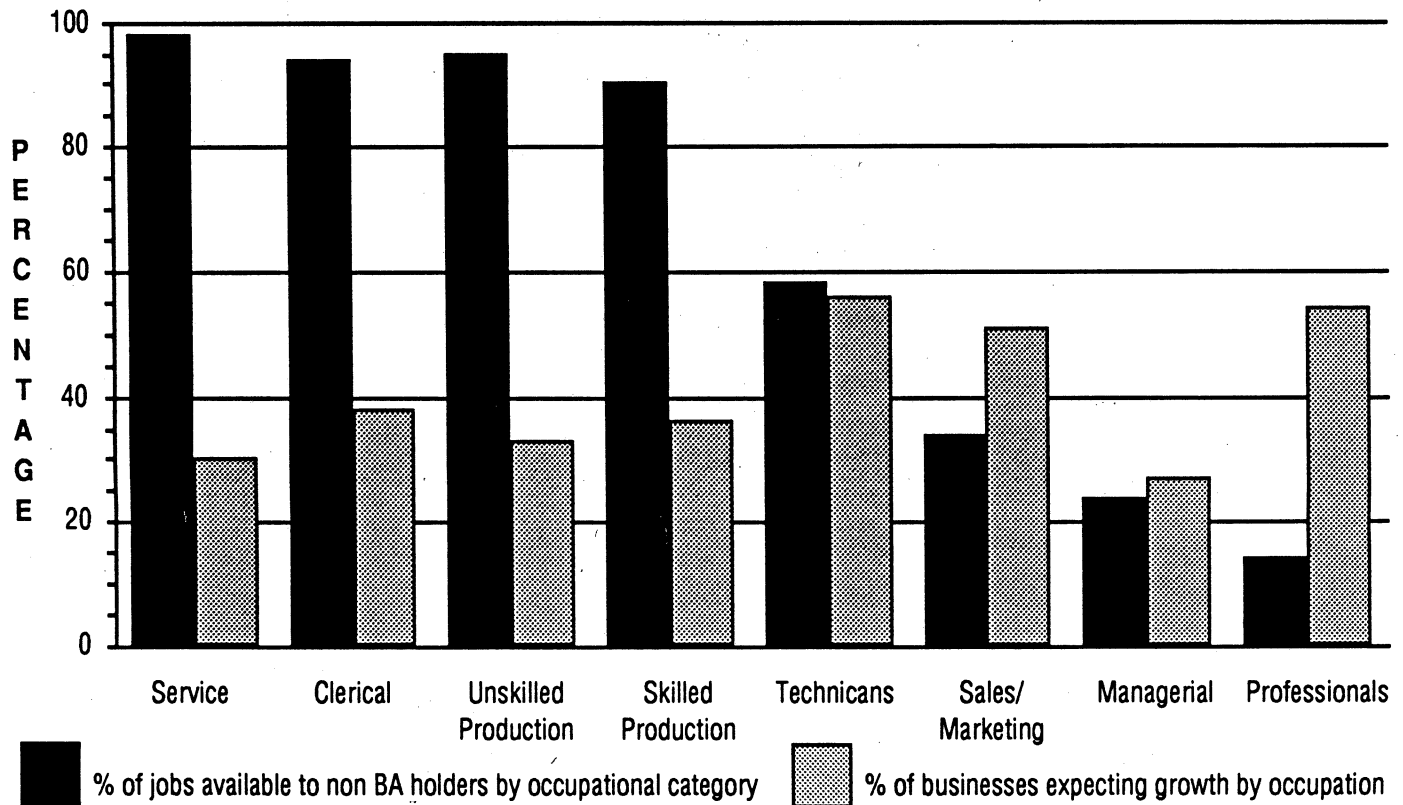


- Nearly three-quarters of all Cambridge companies would recommend their industry to high school diploma holders.
- Companies established since 1985 are much less likely to recommend their industry to job-seekers with a high school training than older companies are.

Cambridge companies are very optimistic about opportunities in their industry for workers with two or more years of post-high school education. Virtually every Medical/Biotechnical and Education respondent recommends these industries for applicants with post-high school education. Goods producers are optimistic about opportunities for this group as well.

Employers anticipate hiring more non-traditional workers but non-high school graduates will be in drastically lower demand than they are currently.

Jobs Available for Non BA Holders and Percentage of Companies EXPECTING Growth by Occupational Category



How should Training Change? How are Companies Willing to Participate in the Process?

As the gap between entry level, lower-skilled positions and credentialed, higher-paying positions grows, the importance of career paths increases. Many large and mid-sized employers, such as universities, government, insurance firms, health care providers and large manufacturers, provide formal progressions by salary steps and skill grades. Progress usually happens within an occupation such as "clerical" or "production," but many rise to supervisory level.

Company-provided training programs provide important ladders to increased skills and salaries for many entry level workers. In some cases, the impetus is on workers to take advantage of such programs as tuition reimbursement or seminars, but a growing number of firms are taking more formal, supervisory initiatives to assess and develop staff, including non-managerial workers.

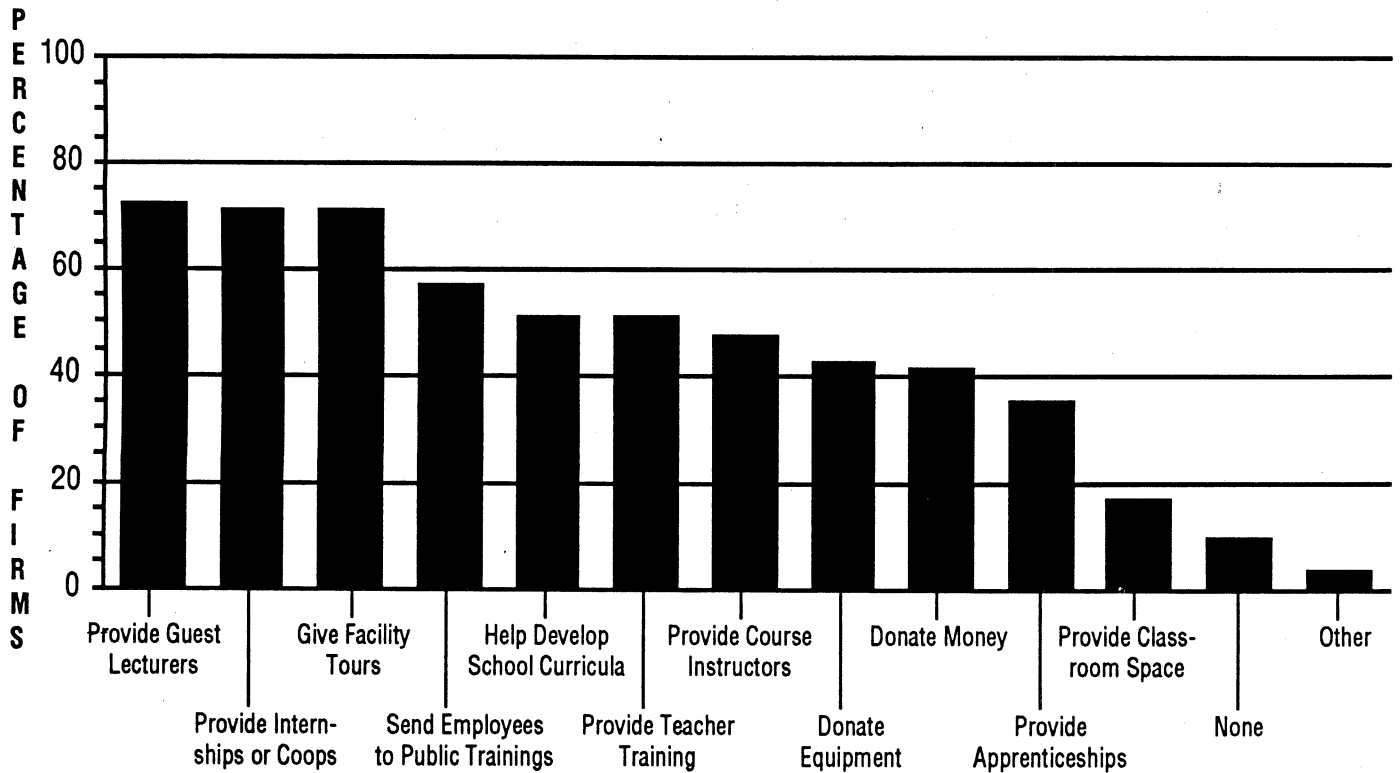
- In one manufacturing firm, supervisors present career ladder options to each employee; staff are informed of how they can rise to higher pay levels by acquiring new skills. This skill and performance-based system is recognized as a national model for compensation and training.

A number of training programs offered by employers seek to upgrade customer service skills, focusing on both social skills and product knowledge.

- A major hotel provided customized "hospitality" training in interpersonal skills to several employees, in cooperation with a state program assisting welfare recipients.

Cambridge firms, in general, are in favor of working more closely with the local school system and employment organizations to enhance the preparation of Cambridge's resident labor force. Although these firms draw from a regional labor pool, there is a high level of interest in local workforce improvement efforts.

Percentage of Firms Willing to Participate in Workforce Improvement Efforts



- The leading recommendation from firms for the local school system is to focus on academic basics. This response is about three times as common as any other.
- Improved screening of applicants and better outreach to businesses are the two most frequent recommendations for Employment & Training organizations. About two-thirds of the firms have had no experience with publicly funded employment services but of the ones that have, good experiences outweighed bad ones by a ratio of about two to one.
- Developing industry specific curricula is by far the leading recommendation for both Community Colleges and Technical Schools.

Employers reported improved worker skills, better business results and an improved work environment as key benefits of their education and training programs. Others cited improved promotion opportunities and organization development.

What are the Advantages and Disadvantages of Doing Business in Cambridge?

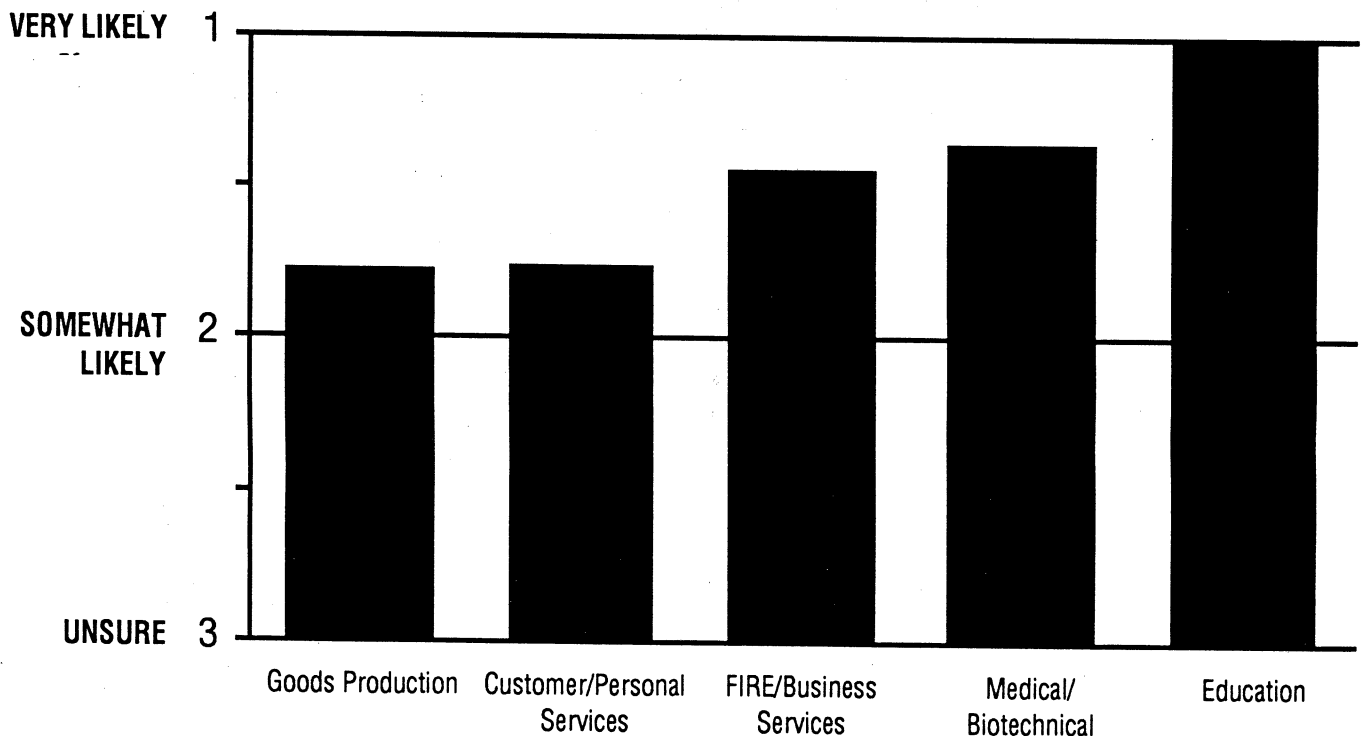
Access to Cambridge's Universities and consumers are of prime importance to the City's businesses. They are more concerned with traffic issues than any other. However, the increasing mismatch between Cambridge resident skills and the requirements of the growing occupational categories forces companies to hire from outside the city which further compounds traffic problems.

- Access to the City's consumer markets, institutions, and skilled labor force are Cambridge's three strongest assets for businesses. Employers also cite the City's prestige and culture as an important amenity.
- 45% of the firms in the survey rate traffic and parking issues as the most negative factors of doing business in Cambridge. High rents and land costs and the restrictive regulatory environment/local government are the second and third most negative factors.

What Companies Leave Cambridge? Why? Where do They Go?

Firms of the new economy are more likely to stay in Cambridge than those in the Goods Producing or Customer/Personal Service sectors.

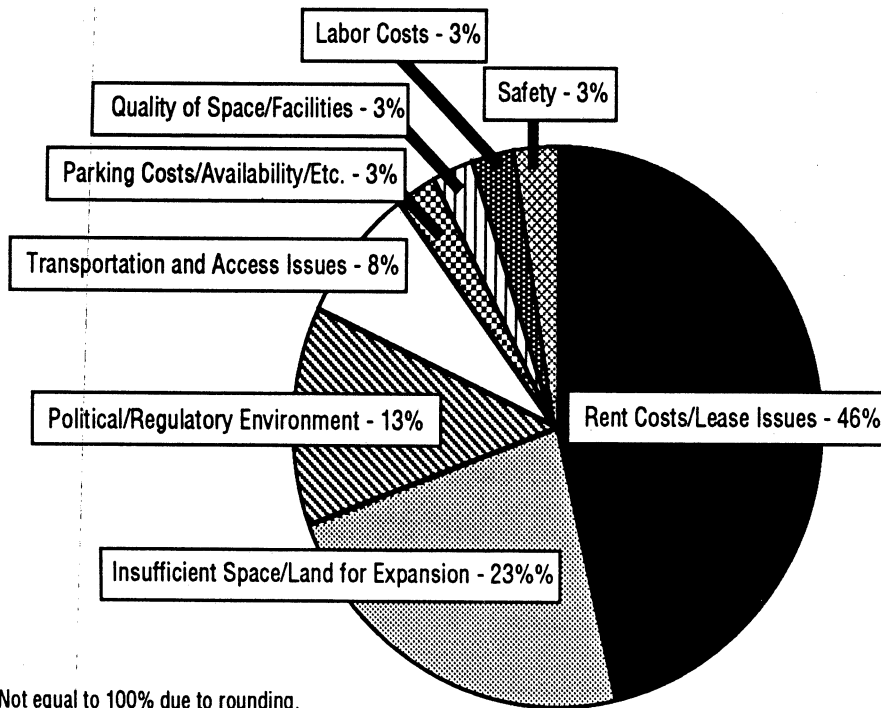
Likelihood of Companies to Stay in Cambridge by Industry Over the NEXT Three Years



- 25% of all Cambridge companies rate the likelihood that they will stay in Cambridge for the next three years as something less than very likely.
- Companies established in the 1950's and 60's are the most likely to consider leaving. 21 of the 23 companies that are less than sure to stay in Cambridge were established in 1975 or earlier.
- Other than Education, FIRE/Business Services is the sector most likely to stay in Cambridge. Goods Producers and Customer/Personal Service firms are the most likely to consider leaving.

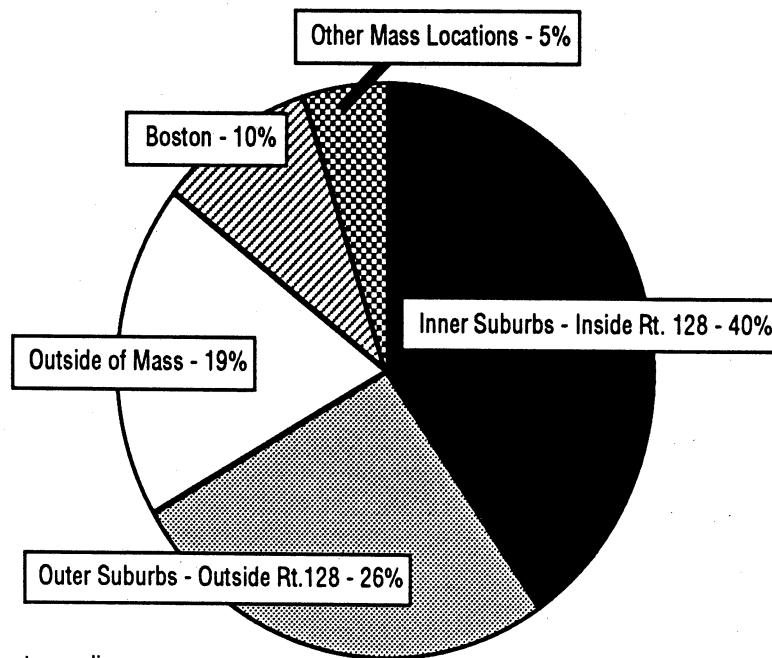
The cost and availability of real estate are by far the biggest factors for firms considering leaving Cambridge. The relative cost pressures on Cambridge commercial tenants have intensified in recent years due to the rapid decline in suburban real estate rents. The relatively high cost of the City's commercial space represents a genuine threat to employment stability.

Why Companies Leave Cambridge



Regional suburbs are more likely than Boston, other parts of Massachusetts or elsewhere to lure Cambridge employers away from the city.

Where Else Cambridge Employers Would Consider Locating



*Not equal to 100% due to rounding.

Summary Conclusion

The evolution of the Cambridge economy brings with it both opportunities and obstacles. The stable sectors of the economy, including Education, will continue to be an important and steady source of jobs. However, the future for some jobs in the traditional sectors of Goods Production and Customer/Personal Services are more at risk. In these industries, jobs will continue to change and like the economy as a whole, these industries are likely to demand increasingly high skills from their workers. The "New Economy" of Business Services, Medical, and Biotechnology companies is likely to grow and flourish here because of the City's universities and technological infrastructure.

The changes that are occurring in Cambridge are leading toward a general upskilling in the requirements for Cambridge jobs. While many lower skill jobs are disappearing, considerable and expanding opportunities exist for workers of moderate skills in the growth industries in technician level positions. Many Cambridge firms want to work to better prepare residents for these and other areas of opportunity in the economy.

Many of the adjustments that have occurred in the Cambridge economy in recent years have will continue. Some of these changes have helped Cambridge to withstand a major downturn in the regional economy in better shape than virtually any of its regional neighbors. Cambridge's "New Economy" has diversified the employment and provides hope for future job creation. At the same time, though, changes in the economy have made getting a job and moving up career ladders in Cambridge much more difficult. Cambridge has experienced an economic evolution.

This survey has provided an understanding of the changes of the past and a glimpse into the issues of the future while highlighting some of the opportunities of the present.

Appendix

To better understand the Cambridge economy, it is helpful to take a closer view of particular industries. The following "snapshots" examine growth patterns, opportunities, work preparation, recruitment and training for each industry group.

Goods Production

Goods Production includes construction and manufacturing firms. Over half were established prior to 1950. They are somewhat less likely than other employers to be in Cambridge in three years

Growth Goods producers generally exhibited stability or decline.

- On the average, these employers declined by three percent in the past three years, and expect an average growth rate of ten percent in the next three years. One in six expects further decline.

Large and stable firms continue to provide jobs in confectioneries, footwear and computer equipment. Small growing firms produce medical equipment, optical instruments, and electrical machinery.

Opportunities Construction and manufacturing firms have offered gateways for those with less formal education, placing more emphasis on experience. Goods producers employ a higher than average level of skilled and unskilled production staff, but these positions are most likely to be cut back.

- In the past three years, over half of all goods producers recorded declines in skilled crafts, while just under half reduced unskilled production jobs.

Goods producers are more likely than others to recommend their industry to non-high school graduates, but the majority (52%) do not. Most recommend their industry to high school graduates.

Preparing for Work Goods producers are twice as likely as other employers to stress poor reading skills or low literacy as the key obstacle to job performance.

Finding Workers Nearly half of this sector conducts recruitment in Cambridge. Goods producers are more likely than other firms to offer apprenticeships to workers or create customized training with technical or community schools. One half of all non-managerial workers take advantage of training opportunities, higher than all other industries.

Customer and Personal Services

Customer and Personal Services firms specialize in trade and services with direct consumer contact, such as shops, restaurants, wholesalers and hotels. Sales and service jobs are the most prominent occupations. These employers are older and smaller, on the average, than firms in other industries.

Growth They are more likely to be declining or stable, and less likely to remain in Cambridge than other employers.

- Customer/PS firms declined by 6% on the average in the past three years, and expect to grow by 2% in the next three.

Wholesalers of medical equipment, office products and architectural and engineering instruments exhibit the most growth.

Opportunities Retailers, hotels and other service-oriented companies offer "gateway" jobs to many applicants. They are more likely than any other sector to encourage non-high school graduates (53%) and high school graduates (88%).

- One in three predicted that clerical positions would decline.

Preparing for Work Customer/PS employers view their applicants for unskilled and technical work as under-prepared, compared to all employers. Poor reading and math skills are more frequently cited as employee obstacles, while public schools, in their opinion, should focus equally on academic basics and career planning.

Finding Workers Employers are less likely to recruit in Cambridge, and have experienced mixed results with public employment services. They would like such programs to place more focus on job readiness. Customer/PS staff are more likely to participate in employer training programs.

- Despite low recruitment, Cambridge residents are hired in greater proportions as are minorities.

Financial and Business Services

Employees in this sector work in finance, insurance and real estate firms, business services, management consulting and engineering and architectural services. "Business services" include janitorial and word processing firms, as well as research, computer consulting and software development.

Growth FIRE/BS firms tend to be newer and faster growing, averaging 49% job growth in the past three years and anticipating 42% in the next three. Growth in clerical, service and production jobs will generally be flat in the next three years. Jobs for technicians and professionals are expected to grow in the vast majority of FIRE/BS firms.

Opportunities Career prospects are limited for those with less education. Nearly 8 in 10 would not recommend their industry to non-high school grads. These employers are twice as likely to discourage those with high school degrees only from applying, but over half (56%) recommend their industry to high school graduates.

Preparing for Work Education receives strong emphasis in this industry. Employers frequently cited "Poor academic preparation" as a workforce impediment.

- Nearly half of the sampled firms require post-high school education for clerical workers, while a similar proportion require a BA for technicians -- more than employers in general.

Finding Workers Nine out of ten FIRE/BS firms recruit in Cambridge. Employers considered a "skilled labor force" to be the most positive aspect of doing business in the City. They would like the public schools to provide better computer preparation, while other industries stressed academic basics.

Medical/Biotechnical

The Medical and Biotechnical industries includes hospitals, health maintenance providers, medical laboratories, biotechnical research and pharmaceutical manufacture. Over 70% of biomedical employers have been established since 1980. Nine out of ten are very likely or somewhat likely to be here in three years.

Growth Nine out of 11 firms sampled added jobs in the last three years, while over half grew by 50% or more. Virtually every biomedical firm expects to add jobs in the next three years.

Opportunities Given the higher educational levels demanded, opportunities for those with less than a Bachelors degree are mixed. Eighty-two percent would not recommend this industry to those lacking high school degrees.

- Two out of three would recommend the biomedical industry to those with a high school degree only, but another third caution that there are no growth opportunities at this level of education.
- About half of all biomedical firms surveyed reported growth for service, clerical and production jobs in the past three years.

The most dramatic growth is projected for technician jobs: nine out of ten biomedical firms added jobs to this category in the past three years, while every firm predicted growth in this occupation.

Preparing for Work Higher levels of academic preparation and/or work experience are generally required for medical and biotechnical jobs. Half of these employers stressed better academic preparation as their greatest need from the school system. They are more likely than their contemporaries in other industries to stress career planning -- making students aware of options and requirements for success in their industry.

- They are more likely than employers as a whole to require course work beyond high school for clerical workers.
- For skilled production workers, 57% require high school plus two years study, compared with one third of all employers.

Finding Workers To respond to these trends, biomedical employers would like to see community colleges and technical schools focus on curriculum specific to their industry. Almost half of all firms specializing in this area rely on customized training with community colleges and technical schools. Two-thirds of the firms recruited considerably in Cambridge, compared to about one half of the total sample. Eight in ten firms, however, have either not heard of or not used publicly funded employment and training services. The few who did reported positive results.

Education

The education sector is anchored by the universities and a few smaller schools and colleges. The institutions are the City's oldest, largest and most stable employers.

Growth Non-Bachelor positions grew for clerical and service workers in the past three years, as did professional and managerial openings. Virtually all occupations will be flat in the near future.

Opportunities Educators are the most likely to hire Cambridge residents: one in five employees is a resident, on the average, compared to less than one in ten for all employers interviewed.

Preparing for Work There is a large pool of skilled and semi-skilled jobs in the institutions, with somewhat lower entry requirements than other sectors, such as health, biotechnical or business services.

- Service positions are open with no minimum skills. Clerical positions generally require a high school degree, while skilled craft work is more likely to require relevant work experience than in other industries.

Finding Workers Academic employers are the most likely to recruit in Cambridge and to use public employment programs, with positive results. The institutions offer a rich array of training programs, ranging from tuition reimbursement to English as a Second Language.

- Institutional staff are less likely, on the average, to use such services than are employees in other industries. Twenty-eight percent of non-managerial workers participate voluntarily, compared to 43% in all industries.



CAMBRIDGE CITY COUNCIL

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Jonathan S. Myers
City Councillor


June 20, 1991

To The Honorable, The City Council:

I am transmitting for your review and information the Preliminary Findings of the Community Development Department Employer Survey entitled "Jobs, Training, and the Evolving Cambridge Economy" dated June 20, 1991.

I hope you find this report informative.

Very truly yours,



Jonathan S. Myers
City Councillor

JSM/dl

Enc.

1. 5-839

COMMUNICATION AND REPORTS FROM CITY OFFICERS

Comm. received from Councillor Jonathan S. Myers transmitting Preliminary Findings of the Community Development Department Employer Survey entitled "Jobs, Training, and the Evolving Cambridge Economy".

In City Council,

June 24, 1991

Placed on file